

AMENDED CLAIMS

[received by the International Bureau on 7 August 2000 (07.08.00);
original claims 1, 9, 10 and 19 amended; remaining claims unchanged (3 pages)]

1. A composite comprising a structural component and a resin component, the structural component comprising structural fibres and a toughening additive comprising non structural thermoplastic fibres and the resin component comprising a non-thermoplastic material, and the structural component being a preform comprising an assembly formed from the structural fibres and the non-structural thermoplastic fibres.
2. A composite as claimed in Claim 1 wherein the resin component is a thermosetting resin composition.
3. A composite as claimed in either Claim 1 or Claim 2 wherein the resin component is a low viscosity thermosetting resin composition.
4. A composite as claimed in any preceding Claim wherein the percentage by volume of the toughening additive in the composite is more than 2% but less than 30%.
5. A composite as claimed in any preceding Claim wherein the volume of the toughening additive is more than 5% but less than 25%.
6. A composite as claimed in any preceding Claim wherein the volume of the toughening additive is more than 10% but less than 20%.
7. A composite as claimed in any preceding Claim wherein the structural reinforcement component is provided in the form of a plurality of layers of textile and at least one veil is provided between a pair of adjacent layers, the veil comprising a thin layer of woven or unwoven material.
8. A composite as claimed in any preceding Claim wherein the volume fraction of the structural fibres in the preform is at least 65%.
9. Use of a structural reinforcement in the manufacture of a composite by liquid composite moulding, the structural reinforcement comprising a preform comprising a dry fibre assembly formed from structural fibres and non-structural thermoplastic fibres.

10. A structural reinforcement for use in a composite comprising a preform which comprises a dry fibrous assembly formed from structural fibres and non-structural thermoplastic fibres, the volume fraction of the structural fibres in the preform being at least 65%.
11. A structural reinforcement as claimed in Claim 10 wherein at least some of the thermoplastic fibres are semi-crystalline.
12. A structural reinforcement as claimed in either Claim 10 or Claim 11 further comprising a resin curing agent.
13. A structural reinforcement as claimed in Claim 12 wherein the curing agent is temperature activatable.
14. A structural reinforcement as claimed in any one of Claims 10 to 13 wherein the preform comprises layers of textile and the reinforcement component additionally includes at least one veil between an adjacent pair of layers, the veil being formed from a thin layer of woven or unwoven material.
15. A structural reinforcement as claimed in Claim 14 wherein the veil includes thermoplastic fibres.
16. A structural reinforcement as claimed in Claim 14 or Claim 15 wherein binder material is distributed on or in the veil.
17. A structural reinforcement as claimed in any one of Claims 14 to 16 wherein the veil has a greater absorbency rate for resin than the fibres.
18. A structural reinforcement as claimed in Claims 10 to 17 wherein the preform includes a textile comprising a hybrid yarn of commingled structural fibres and thermoplastic fibres or yarn of structural fibres and yarn of thermoplastic fibres.
19. A method of making a composite comprising forming a preform by combining dry structural fibres with dry non-structural thermoplastic fibres in an assembly to provide a structural component, injecting or

infusing a liquid resin into the structural component, and curing the liquid resin component.

20. A method as claimed in Claim 19 wherein a resin curing agent is added to the structural component prior to the resin component.
21. A method as claimed in Claim 20 wherein the curing agent is encapsulated in a material which melts at a first temperature and wherein the curing step involves raising the temperature to the first temperature to activate the curing agent.
22. A method as claimed in any one of Claims 19 to 21 wherein the curing step is at least partially carried out at a temperature below the melting point of the thermoplastic fibres.
23. A method as claimed in any one of Claims 19 to 22 wherein the preform includes textile is provided in layers and a veil is provided between at least one adjacent pair of layers prior to addition of the resin, the veil comprising a thin layer of woven or non-woven material.
24. A method as claimed in Claim 23 comprising distributing binder material on or in the veil.
25. A method as claimed in any one of Claims 19 to 24 wherein the resin injection process is resin transfer moulding or composite resin injection moulding.